ENVIRONMENTAL STUDY OF ERTS-A IMAGERY

LAKE CHAMPLAIN BASIN AND VERMONT

Proposal No: SR 347

GSFC ID No: UN 137

Contract No: NAS5-21753

Principal Investigator: Dr. A. O. Lind

Bi-monthly report for period ending 1 May, 1973

1973

Urgent Problem Area:

In preparations for the final report writing phase of this study it was discovered that documentation of the International Paper Co.'s pollution plume in Lake Champlain was not made from standard aerial imagery except in one case where the sensor used covered the area of interest, but in the least useful mode (Color Infrared).

Therefore, it is requested that priority be given to a series of two or three flights (consecutive, weather permitting), over the southern arm of Lake Champlain from two miles south of Fort Ticonderoga to Port Henry, New York, a single flight line about 15 miles long. This would also assist us in further documenting the turbidity boundary discussed in previous reports. It is not absolutely necessary that this flight occur simultaneous with ERTS coverage over the test site (July 7 and 25). Any two or three-day consecutive period within the above dates will provide the necessary documentation.

Earlier aerial coverage provided did not include the area of interest in the following modes: Multiband (ERTS simulation) and Aero Ektachrome. These may be 70 mm. format. Standard 9" film is preferred in the Ektachrome coverage.

The imagery will be used to benefit the State of Vermont since it is still possible that ERTS imagery will be introduced in court (Vermont vs. IPC and State of New York), so besides providing necessary documentation for the final report, the imagery taken as a result of this request may also be of particular value to back-up ERTS data.

Coordinates of the area of interest are:

NW corner:	44°. 03'N	73°. 30'W
NE corner:	44°. 03'N	73°. 18'W
SW corner:	43°. 45'N	73°. 36'W
SE corner:	43°. 45'N	73°. 18'W

Centered on the lake. The lake is only about 1 km. wide in this area.

Scale: 1:30,000 or 1:20,000 for 9" format

Work Accomplished:

Efforts during this reporting period were directed towards continuing analysis of winter ERTS scenes of Vermont and Lake Champlain. Seasonal coverage of Lake Champlain provided data on ice formation and melting. Poor weather conditions during several of the ERTS passes provided less than desirable data for lake ice mapping, but two scenes are available for lake ice mapping. The value of the lake ice mapping effort seems to be particular relevant to the problem of shore erosion and with the use of ERTS derived data further investigation will attempt to identify shorelines which have the longer ice-free period and are hence susceptible to wave erosion for longer periods.

Further refinements in the land use mapping application of ERTS data was attempted with the use of seasonal coverage. Particularly interesting and useful for the vegetation mapping phase of the land type mapping effort was the application of winter (January) ERTS data. It was found that this coverage made the task of differentiating forest lands of all types from other categories particularly easy. This again demonstrates the value of seasonal coverage for land use mapping in this region.

Some time was devoted to preparation for local television and press coverage of the ERTS project.

A paper was in preparation to be given at the American Society of Limnology and Oceanography annual meetings in Salt Lake City, Utah, during early June. The paper summarizes ERTS findings to date of limnological significance.

Continued monitoring of water pollution from the International Paper Co. mill at Fort Ticonderoga was hindered by poor weather conditions during early winter, but a second look at the discharge plume from the mills' water treatment plant was obtained during the April 7 pass of ERTS over the region.

Planned Activity for Next Reporting Period:

This is the final bi-monthly (Type - 1) progress report preceding the final report which contains details of the significant results obtained during the course of the project. Final report preparation will begin in early June.